

LAKE HAVASU CITY, ARIZONA

ADDENDUM NO. 1

TO

WATER CONSERVATION PROGRAM IMPLEMENTATION
PACKAGE NO. 2
LAKE HAVASU CITY PROJECT NO. SS2970

The following are changes and/or clarifications to the specification, contract documents, and drawings for the above-referenced project. The contents of this Addendum may affect pricing in the proposal; therefore, notification of receipt of this Addendum must appear on the Bid Form at the time of the bid opening.

LAKE HAVASU CITY, ARIZONA
WATER CONSERVATION PROGRAM IMPLEMENTATION
PACKAGE NO. 2

ADDENDUM NO. 1
TO
LAKE HAVASU CITY PROJECT NO. SS2970
SEPTEMBER 21, 2016

Contract Specifications:

1. DETAIL SPECIFICATION: SECTION 00020 NOTICE INVITING BIDS

Revise the first paragraph on page 00020-1 as follows:

This project consists of converting the irrigation water source at various locations along Arizona Highway 95 and at Cypress Park, Jack Hardie Park, and the ASU Campus from potable water to reclaimed water. This will involve disconnecting the landscape irrigation connections along the highway, the parks, and ASU campus irrigation systems from potable water service and reconnecting them to reclaimed water lines. The project includes the installation of approximately 1,260 linear feet of 4-inch DR 18 PVC, approximately 1,140 linear feet of 4-inch Schedule 80 PVC, and approximately 670 linear feet of 2-inch Schedule 80 PVC, associated tapping saddles, gate valves, fittings and appurtenances, and landscaping and surface replacement for areas disturbed by the work, and associated electrical and instrumentation. The project also includes installation of new motorized valves in valve vaults at the intersection of Smoketree and Arizona Highway 95, ***a new motorized valve in valve vault at Oak Drive south of the existing reclaimed water connection***, modifications to an existing lift station, including a new hydropneumatic tank and associated appurtenances at the Mulberry Wastewater Treatment Plant, and a packaged reuse booster pump station at the Island Wastewater Treatment Plant.

2. DETAIL SPECIFICATION: SECTION 00310 BID SCHEDULE

Replace Section 00310, BID SCHEDULE with attached Section 00310, BID SCHEDULE.

3. DETAIL SPECIFICATION: SECTION 00800 SPECIAL PROVISIONS

Revise text in PART 2.0 PROJECT DESCRIPTION as follows:

This project consists of converting the irrigation water source at various locations along Arizona Highway 95 and at Cypress Park, Jack Hardie Park, and the ASU Campus from potable water to reclaimed water. This will involve disconnecting the landscape irrigation connections along the highway, the parks, and ASU campus irrigation systems from potable water service and reconnecting them to reclaimed water lines. The project includes the installation of approximately 1,260 linear feet of 4-inch DR 18 PVC, approximately 1,140 linear feet of 4-inch Schedule 80 PVC, and approximately 670 linear feet of 2-inch Schedule 80 PVC, associated tapping saddles, gate valves, fittings and appurtenances, and landscaping and surface replacement for areas disturbed by the work, and associated electrical and instrumentation. The project also includes installation of new motorized valves in valve vaults at the intersection of Smoketree and Arizona Highway 95, ***a new motorized valve in valve vault at Oak Drive south of the existing reclaimed water connection***, modifications to an existing lift station, including a new hydropneumatic tank and associated appurtenances at the Mulberry Wastewater Treatment Plant, and a packaged reuse booster pump station at the Island Wastewater Treatment Plant.

4. DETAIL SPECIFICATION: SECTION 01110 SUMMARY OF WORK

Revise text in PART 1.2.A as follows:

Description of Project: This project consists of converting the irrigation water source at various locations along Arizona Highway 95 and at Cypress Park, Jack Hardie Park, and the ASU Campus from potable water to reclaimed water. This will involve disconnecting the landscape irrigation connections along the highway, the parks, and ASU campus irrigation systems from potable water service and reconnecting them to reclaimed water lines. The project includes the installation of approximately 1,260 linear feet of 4-inch DR 18 PVC, approximately 1,140 linear feet of 4-inch Schedule 80 PVC, and approximately 670 linear feet of 2-inch Schedule 80 PVC, associated tapping saddles, gate valves, fittings and appurtenances, and landscaping and surface replacement for areas disturbed by the work, and associated electrical and instrumentation. The project also includes installation of new motorized valves in valve vaults at the intersection of Smoketree and Arizona Highway 95, ***a new motorized valve in valve vault at Oak Drive south of the existing reclaimed water connection***, modifications to an existing lift station, including a new hydropneumatic tank and associated appurtenances at the Mulberry Wastewater Treatment Plant, and a packaged reuse booster pump station at the Island Wastewater Treatment Plant.

5. DETAIL SPECIFICATION: SECTION 01210 MEASUREMENT AND PAYMENT

Replace Section 01210, MEASUREMENT AND PAYMENT with attached Section 01210, MEASUREMENT AND PAYMENT.

Contract Drawings:

1. DETAIL DRAWING: G-005

Replace Drawing G-005, LOCATION MAPS 2, with attached Drawing G-005, LOCATION MAPS 2.

2. DETAIL DRAWING: C-009A

Replace Drawing C-009A, SITE PLAN WALNUT DR TO CONTROLLERS, with attached Drawing C-009A, SITE PLAN WALNUT DR TO CONTROLLERS.

3. DETAIL DRAWING: M-001

Replace Drawing M-001, MULBERRY WWTP HYDROPNEUMATIC TANK AND PIPING MODIFICATIONS, with attached Drawing M-001, MULBERRY WWTP HYDROPNEUMATIC TANK AND PIPING MODIFICATIONS.

4. DETAIL DRAWING: M-002

Replace Drawing M-002, ISLAND EFFLUENT REUSE PUMP STATION, with attached Drawing M-002, ISLAND EFFLUENT REUSE PUMP STATION.

5. DETAIL DRAWING: T-002

Replace Drawing T-002, TYPICAL DETAILS II, with attached Drawing T-002, TYPICAL DETAILS II.

6. DETAIL DRAWING: E-003

Replace Drawing E-003, ELECTRICAL AND PROGRAMMING SPECIFICATIONS, with attached Drawing E-003, ELECTRICAL AND PROGRAMMING SPECIFICATIONS.

7. DETAIL DRAWING: E-010

Add Drawing E-010, MULBERRY PLANT SITE PLAN.

Addendum No. 1 pages AD1-1 through AD1-5, and all attachments, shall become part of CONTRACT and all provisions of CONTRACT shall apply thereto.

The time provided for completion of CONTRACT is not changed.

Bidders shall acknowledge receipt of this Addendum No. 1 in the space provided in the Bid Form. Failure to acknowledge receipt of all addenda will render the bid non-responsive.



Keli A. Callahan, P.E.
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376 East Warm Springs Road, Suite 250
Las Vegas, NV 89119
(702) 792-3711

EXPIRES 06-30-2017

ATTACHMENTS TO

LAKE HAVASU CITY, ARIZONA

ADDENDUM NO. 1

TO

WATER CONSERVATION PROGRAM IMPLEMENTATION
PACKAGE NO. 2
LAKE HAVASU CITY PROJECT NO. SS2970

List of Attachments

Specifications

Pages

00310	BID SCHEDULE	1:4
01210	MEASUREMENT AND PAYMENT	1:10

Revised Drawings

G-005	LOCATION MAPS 2
C-009A	SITE PLAN WALNUT DR TO CONTROLLERS
M-001	MULBERRY WWTP HYDROPNEUMATIC TANK AND PIPING MODIFICATIONS
M-002	ISLAND EFFLUENT REUSE PUMP STATION
T-002	TYPICAL DETAILS II
E-003	ELECTRICAL AND PROGRAMMING SPECIFICATIONS

New Drawings

E-010	MULBERRY PLANT SITE PLAN
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SECTION 00310

BID SCHEDULE
LAKE HAVASU CITY

Water Conservation Program Implementation Package No. 2
Project No. SS2970

Lake Havasu City Council
Lake Havasu City
2330 N. McCulloch Boulevard
Lake Havasu City, AZ 86403

The City Council:

Pursuant to request for bids to be opened the 28th day of September, 2016 at 3:00 P.M., Arizona Time, at Room 109 of Lake Havasu City Hall, for the above project, the Contractor proposes to complete work, including furnishing all labor and materials, per the Specifications and Plans at the Following prices.

This Schedule of Items and Prices shall be completed in ink or typed by the Bidding Contractor. In case of discrepancy between the word and figure amount description, the word description shall control extensions.

Prices must be entered for each item and the appropriate subtotal and total blank shall be filled out. Bid prices shall include sales tax and all other applicable taxes and fees.

Bidder agrees to perform all the necessary work to complete the **Water Conservation Program Implementation Package No. 2, Project No. SS2970**. See Section 01210, Measurement and Payment, for descriptions of Bid Items listed in Section 00310.

Revised 3/14/12

00310-1

Water Conservation Program Implementation, Package No. 2

Addendum No. 1

September 2016
Project SS2970

SECTION 00310

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT OF MEASURE</u>	<u>UNIT PRICE ¹ (Word & Figure Amount)</u>	<u>ITEM TOTAL COSTS ²</u>
BASE BID					
2.2.1	Mobilization, Demobilization, Bonds, and Insurance	1	L.S.	\$_____	\$_____
2.2.2	Construction Staking	1	L.S.	\$_____	\$_____
2.2.3	Location A Connections - W Acoma Blvd-Industrial Blvd	1	L.S.	\$_____	\$_____
2.2.4	Location B Connections - Paseo Del Sol	1	L.S.	\$_____	\$_____
2.2.5	Location C Connections - S Palo Verde Blvd	1	L.S.	\$_____	\$_____

¹ The "Unit Price" column shall indicate unit or lump sum prices for each bid item and shall be indicated in written and numerical form.

² The "Item Total Costs" column shall indicate the extension of the unit prices, which is obtained by multiplying the "Estimated Quantity" column by the "Unit Price" column.

Revised 3/14/12

00310-2

Water Conservation Program Implementation, Package No. 2

Addendum No. 1

September 2016

Project SS2970

SECTION 00310

2.2.6	Location D Connections - McCulloch Blvd N-Swanson Ave	1	L.S.	\$ _____	\$ _____
2.2.7	Location E Connection - S Smoketree Ave	1	L.S.	\$ _____	\$ _____
2.2.8	Location F Connection - Lake Havasu City Aquatic Center	1	L.S.	\$ _____	\$ _____
2.2.9	Location G Connection - Walnut Dr	1	L.S.	\$ _____	\$ _____
2.2.10	Location G Connection - Walnut Dr Electrical and Instrumentation	1	L.S.	\$ _____	\$ _____
2.2.11	Location H Connections - Cypress Park	1	L.S.	\$ _____	\$ _____
2.2.12	Location I Connections - ASU Campus	1	L.S.	\$ _____	\$ _____
2.2.13	Location J Connections - Jack Hardie Park	1	L.S.	\$ _____	\$ _____
2.2.14	Mulberry WWTP Hydropneumatic Tank	1	L.S.	\$ _____	\$ _____

SECTION 00310

2.2.15	Mulberry WWTP Hydropneumatic Tank Installation	1	L.S.	\$ _____	\$ _____
2.2.16	Mulberry WWTP Hydropneumatic Tank Electrical and Instrumentation	1	L.S.	\$ _____	\$ _____
2.2.17	Mulberry WWTP Hydropneumatic Tank System Integration	1	L.S.	\$ _____	\$ _____
2.2.18	Island WWTP Reuse Package Booster Pump Station	1	L.S.	\$ _____	\$ _____
2.2.19	Island WWTP Reuse Package Booster Pump Station Installation	1	L.S.	\$ _____	\$ _____
2.2.20	Island WWTP Reuse Package Booster Pump Station Electrical and Instrumentation	1	L.S.	\$ _____	\$ _____
2.2.21	Island WWTP Reuse Package Booster Pump Station System Integration	1	L.S.	\$ _____	\$ _____

SECTION 00310

2.2.22	18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ 95	1	L.S.	\$ _____	\$ _____
2.2.23	18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ 95 Electrical and Instrumentation	1	L.S.	\$ _____	\$ _____
2.2.24	18-inch Reuse Line Motor Operated Valves and Vaults at Smoketree and AZ 95 System Integration	1	L.S.	\$ _____	\$ _____
2.2.25	Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP	1	L.S.	\$ _____	\$ _____
2.2.26	Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP Electrical and Instrumentation	1	L.S.	\$ _____	\$ _____

SECTION 00310

2.2.27	Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP System Integration	1	L.S.	\$ _____	\$ _____
2.2.28	Environmental Control Measures	1	L.S.	\$ _____	\$ _____
2.2.29	Dye Testing	1	L.S.	\$ _____	\$ _____
2.2.30	All Other Work Not Included in Items 2.2.1 through 2.2.29	1	L.S.	\$ _____	\$ _____
2.2.31	Force Account	1	L.S.	\$ <u>20,000</u> Twenty Thousand Dollars and no cents	\$ <u>20,000</u>

BID TOTAL + FORCE ACCOUNT \$ _____

The unit prices for **Water Conservation Program Implementation Package No. 2, Project No. SS2970** shall include all labor, materials, water disposal, bailing, shoring, removal, disposal, overhead, profit, insurance, and all other related costs and work to cover the finished work of the several kinds called for. Changes in the Contract shall be processed in accordance with Paragraph 16 of the General Conditions.

Bidder understands that the Owner reserves the right to reject any or all Bids, or portions thereof, and to waive any informalities in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving Bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder shall execute the formal Contract attached within 10 days and deliver a Performance Bond, Payment Bond, and Certificates of Insurance as required by Paragraph 25 of the General Conditions and the Special Provisions.

The Bid security attached in the sum of \$ _____ is to become the property of the Owner in the event the Contract and Bond(s) are not executed and provided within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Bidder hereby acknowledges receipt of the following Addenda: ____, ____, ____.

RESPECTFULLY SUBMITTED BY:

BY: _____

TITLE: _____

FIRM: _____

ADDRESS: _____

PHONE: _____ FAX _____

Seal - if Bid by a corporation

AZ Contractor's License No: _____ Type _____

** END OF SECTION **

SECTION 01210
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 Description

The outline of measurement and payment in this section is intended to provide a general guideline to the Contractor in preparing bids and submitting pay requests. Listing of work included in each bid item is not intended to include all work, but is to provide general guidance to the Contractor for allocating costs. All work will be paid for on a unit price basis with payment made for the quantity of each item completed.

All materials required for construction shall be furnished by the Contractor unless specifically stated. Items not specifically measured and paid for shall be considered as subsidiary items required to complete the installation in accordance with the intent of the contract documents. The Contractor shall include in the unit price bid items, all costs associated with subsidiary items not being measured for payment.

1.2 Authority

Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

Take all measurements and compute quantities. The Engineer will verify measurements and quantities.

1.3 Unit Quantities

Quantities indicated in the Bid Form are for bidding and contract purpose only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment.

If the actual Work requires more or fewer quantities than indicated, provide the required quantities at the unit prices contracted.

PART 2 – UNITS AND METHODS OF MEASUREMENT AND PAYMENT

2.1 General

All items that are included in the bid for measurement and payment are included herein. All other items of work shall be considered subsidiary to construction and will not be measured for payment.

2.2 UNITS AND METHODS OF MEASUREMENT

2.2.1 Mobilization, Demobilization, Bonds, and Insurance

The Contract Lump Sum Price for "Mobilization, Demobilization, Bonds, and Insurance" shall constitute full compensation for furnishing all materials, labor, equipment, and tools for all required bonds, insurance, mobilization, demobilization of staff and equipment, and any other costs associated with complying with the contract administrative requirements and commencing work at the project site.

Payment for Mobilization, Demobilization, Bonds, and Insurance shall be lump sum and shall not be requested until at least thirty days from the notice to proceed has elapsed.

Payment for this item shall be made in accordance with Table A.

TABLE A

Payment for Mobilization on First Partial Payment	Not to exceed 2.5% of the Total Bid + Force Amount
Subsequent payments for Mobilization	Not to exceed 2.5% of Total Bid + Force Amount
Payment for Mobilization on Final Partial Payment	Any remaining Mobilization in excess of 5% Total Bid + Force Amount

2.2.2 Construction Staking

The quantity of "Construction Staking" measured for payment shall be lump sum.

The Contract lump sum price for "Construction Staking" shall constitute full compensation for furnishing all materials, labor, equipment and tools for the construction staking of all force main and any other piping, connections to irrigation systems, and all other related items. This item also includes all work and materials necessary to complete the work as described in the Plans and Specifications.

2.2.3 Location A Connections – W Acoma Blvd-Industrial Blvd

The quantity of "Location A Connections - W Acoma Blvd-Industrial Blvd" measured for payment shall be lump sum.

The Contract lump sum price for "Location A Connections - W Acoma Blvd-Industrial Blvd" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the connection, the capping and removal of interfering portions of existing 2-inch

potable water main, installation of a 2-inch tapping valve on the existing 18-inch reclaimed water main, and installing 2-inch PVC Schedule 80 reclaimed water pipe including all fittings, gate valves, pipe locator ribbon, PRV including box, meter assembly including box, and testing as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.4 Location B Connections – Paseo Del Sol

The quantity of "Location B Connections - Paseo Del Sol" measured for payment shall be lump sum.

The Contract lump sum price for "Location B Connections - Paseo Del Sol" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility location, excavation, backfill, compaction required for the construction of the 4-inch fusible and standard PVC C900 (DR 18) force main, connections, the capping and removal of interfering portions of the existing 2-inch potable water main, installation of a 4-inch tapping valve on the existing 18-inch reclaimed water main, and installing 2-inch PVC Schedule 80 reclaimed water pipe including all fittings, gate valves, restrained joints and/or thrust blocks, tape-wrap coating of ductile iron pipe fittings, and pipe locator ribbon, and meter assembly including vault as shown on the Drawings. This item also includes any surface repair in the roadway, landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.5 Location C Connections – S Palo Verde Blvd

The quantity of "Location C Connections - S Palo Verde Blvd" measured for payment shall be lump sum.

The Contract lump sum price for "Location C Connections - S Palo Verde Blvd" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the connection, the capping and removal of interfering portions of the existing 2-inch potable water main, salvage of existing water meter and irrigation loop to LHC, installation of a 2-inch tapping valve on the existing 18-inch reclaimed water main, and installing 2-inch PVC Schedule 80 reclaimed water pipe including all fittings, gate valves, pipe locator ribbon, PRV including box, meter assembly including box, and testing as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the

construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.6 Location D Connections – McCulloch Blvd N-Swanson Ave

The quantity of "Location D Connections - McCulloch Blvd N-Swanson Ave" measured for payment shall be lump sum.

The Contract lump sum price for "Location D Connections - McCulloch Blvd N-Swanson Ave" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the connections, 4-inch PVC C900 (DR 18) force main, installation of a 4-inch tapping valve on the existing 18-inch reclaimed water main, the capping and removal of interfering portions of the existing 1-1/4 inch and 1-1/2 inch potable water main, and installing 1-1/2 inch and 2-inch PVC Schedule 80 reclaimed water pipe including all fittings, gate valves, pipe locator ribbon, PRV including box, meter assembly including box, and testing as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.7 Location E Connection – S Smoketree Ave

The quantity of "Location E Connection - S Smoketree Ave" measured for payment shall be lump sum.

The Contract lump sum price for "Location E Connection - S Smoketree Ave" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from the landscape irrigation system. This item includes but is not limited to capping and removal of existing irrigation loop and salvage of existing irrigation loop to LHC as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.8 Location F Connection – Lake Havasu City Aquatic Center

The quantity of "Location F Connection - Lake Havasu City Aquatic Center" measured for payment shall be lump sum.

The Contract lump sum price for "Location F Connection - Lake Havasu City Aquatic Center" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply

from and connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the connections, the capping and removal of interfering portions of the existing 2-inch potable water main, installation of a 2-inch tapping valve on the existing 18-inch reclaimed water main, and installing 2-inch PVC Schedule 80 reclaimed water pipe including all fittings, gate valves, restrained joints and/or thrust blocks, and pipe locator ribbon as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.9 Location G Connection – Walnut Dr

The quantity of "Location G Connection - Walnut Dr" measured for payment shall be lump sum.

The Contract lump sum price for "Location G Connection - Walnut Dr" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to connect the reclaimed water supply to the landscape irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the connection, installation of a 4-inch tapping valve on the existing 18-inch reclaimed water main, and installing 4-inch PVC C-900 (DR 18) reclaimed water pipe including all fittings, gate valves, restrained joints and/or thrust blocks, tape-wrap coating of ductile iron pipe fittings, meter assembly including vault, pipe loop assembly, and pipe locator ribbon as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.10 Location G Connection – Walnut Dr Electrical and Instrumentation

The quantity of "Location G Connection - Walnut Dr Electrical and Instrumentation" measured for payment shall be lump sum.

The contract lump sum price for "Location G Connection - Walnut Dr Electrical and Instrumentation" shall be full compensation for furnishing all materials, labor, equipment and tools to install all conduits, pull boxes, cable, etc. to complete the work in accordance with the Plans and Specifications.

2.2.11 Location H Connections – Cypress Park

The quantity of "Location H - Cypress Park" measured for payment shall be lump sum.

The Contract lump sum price for "Location H - Cypress Park" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the park's irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the 4-inch PVC C900 (DR 18) force main, 8-inch fusible PVC C900 (DR 18) force main, 3-inch PVC Schedule 80 reclaimed water piping, connections, the capping and removal of interfering portions of the existing 3-inch potable water main, installation of a 4-inch and 8-inch tapping valve on the existing 8-inch reclaimed water main, and installing 4-inch irrigation loop including all electrical wiring, fittings, gate valves, restrained joints and/or thrust blocks, tape-wrap coating of ductile iron pipe fittings, and pipe locator ribbon as shown on the Drawings. This item also includes any surface repair in the roadway, landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.12 Location I Connections – ASU Campus

The quantity of "Location I Connections- ASU Campus" measured for payment shall be lump sum.

The Contract lump sum price for "Location I Connections - ASU Campus" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the ASU Campus irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the 4-inch PVC C900 (DR 18) force main, connections, the capping and removal of interfering portions of the existing 2-inch potable water main, and installing 2-inch PVC Schedule 80 reclaimed water pipe and 2-inch copper piping, and modifications to existing irrigation loop including all fittings, gate valves, restrained joints and/or thrust blocks, tape-wrap coating of ductile iron pipe fittings, PRV including box, meter assembly including vault, and pipe locator ribbon as shown on the Drawings. This item also includes any surface repair in the roadway, curb, gutter, sidewalk, landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.13 Location J Connections – Jack Hardie Park

The quantity of "Location J Connections - Jack Hardie Park" measured for payment shall be lump sum.

The Contract lump sum price for "Location J Connections - Jack Hardie Park" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to disconnect the potable water supply from and connect the reclaimed water supply to the park's irrigation system. This item includes but is not limited to all traffic control, utility locating, excavation, backfill, compaction required for the construction of the 2-inch PVC Schedule 80 force main, connections, the capping and removal of interfering portions of the existing 2-inch potable water main, gate valves, restrained joints and/or thrust blocks, and pipe locator ribbon as shown on the Drawings. This item also includes any surface repair in the landscape and elsewhere as required for the construction of the connection. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.14 Mulberry WWTP Hydropneumatic Tank

The quantity of "Mulberry WWTP Hydropneumatic Tank" measured for payment shall be lump sum.

The Contract lump sum price for "Mulberry WWTP Hydropneumatic Tank" shall constitute full compensation for procuring the pumping system as specified in Section 13206G.

2.2.15 Mulberry WWTP Hydropneumatic Tank Installation

The quantity of "Mulberry WWTP Hydropneumatic Tank Installation" measured for payment shall be lump sum.

The contract lump sum price for "Mulberry WWTP Hydropneumatic Tank Installation" shall be full compensation for furnishing all materials, labor, equipment, and tools to fully install the Hydropneumatic Tank including piping, excavation, backfill, concrete, pipe supports, equipment supports, testing, and all other appurtenances not included in item 2.2.14, but required for complete and operational Hydropneumatic Tank system.

2.2.16 Mulberry WWTP Hydropneumatic Tank Electrical and Instrumentation

The quantity of "Mulberry WWTP Electrical and Instrumentation" measured for payment shall be lump sum.

The Contract lump sum price for "Mulberry WWTP Electrical and Instrumentation" shall constitute full compensation for furnishing all materials, labor, equipment, and tools necessary to modify the electrical, control and instrumentation systems associated with the new hydropneumatic tank.

2.2.17 Mulberry WWTP Hydropneumatic Tank System Integration

The quantity of "Mulberry WWTP System Integration" measured for payment shall be lump sum.

The contract lump sum price for "Mulberry WWTP System Integration" shall be full compensation for furnishing all materials, labor, equipment and tools to install perform all system integration required to provide a complete operating system in accordance with the Plans and Specifications.

2.2.18 Island WWTP Reuse Package Booster Pump Station

The quantity of "Island WWTP Reuse Package Booster Pump Station" measured for payment shall be lump sum.

The Contract lump sum price for "Island WWTP Reuse Package Booster Pump Station" shall constitute full compensation for procuring the pumping system as specified in Section 11211.

2.2.19 Island WWTP Reuse Package Booster Pump Station Installation

The quantity of "Island WWTP Reuse Package Booster Pump Station Installation" measured for payment shall be lump sum.

The contract lump sum price for "Island WWTP Reuse Package Booster Pump Station Installation" shall be full compensation for furnishing all materials, labor, equipment, and tools to fully install the Island WWTP Reuse Package Booster Pump Station including piping, excavation, backfill, concrete, pipe supports, equipment supports, testing, and all other appurtenances not included in item 2.2.18, but required for complete and operational Booster Pump Station.

2.2.20 Island WWTP Reuse Package Booster Pump Station Electrical and Instrumentation

The quantity of "Island WWTP Reuse Package Booster Pump Station Electrical and Instrumentation" measured for payment shall be lump sum.

The contract lump sum price for "Island WWTP Reuse Package Booster Pump Station Electrical and Instrumentation" shall be full compensation for furnishing all materials, labor, equipment and tools to install all conduits, cable, electrical supports, etc. to complete the work in accordance with the Plans and Specifications.

2.2.21 Island WWTP Reuse Package Booster Pump Station System Integration

The quantity of "Island WWTP Reuse Package Booster Pump Station System Integration" measured for payment shall be lump sum.

The contract lump sum price for "Island WWTP Reuse Package Booster Pump Station System Integration" shall be full compensation for furnishing all materials, labor, equipment and tools to install perform all system integration required to provide a complete operating system in accordance with the Plans and Specifications.

2.2.22 18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95

The quantity of "18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95" measured for payment shall be lump sum.

The contract lump sum price for "18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95" shall be full compensation for furnishing all materials, labor, equipment, and tools to fully install the valve vaults and motorized valves including all piping, fittings, concrete, hatches, and other appurtenances except electrical and control to the motor operator.

2.2.23 18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95 Electrical and Instrumentation

The quantity of "18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95 Electrical and Instrumentation" measured for payment shall be lump sum.

The contract lump sum price for "18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95 Electrical and Instrumentation" shall be full compensation for furnishing all materials, labor, equipment and tools to install all conduits, cable, electrical supports, etc. to complete the work in accordance with the Plans and Specifications.

2.2.24 18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95 System Integration

The quantity of "18-inch Reuse Line Moto Operated Valves and Valve Vaults at Smoketree and AZ95 System Integration" measured for payment shall be lump sum.

The contract lump sum price for "18-inch Reuse Line Motor Operated Valves and Valve Vaults at Smoketree and AZ95 System Integration" shall be full compensation for furnishing all materials, labor, equipment and tools to install perform all system integration required to provide a complete operating system in accordance with the Plans and Specifications.

2.2.25 Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP

The quantity of "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP" measured for payment shall be lump sum.

The contract lump sum price for "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP" shall be full compensation for furnishing all materials, labor, equipment, and tools to fully install the valve vault and motorized valve including all piping, fittings, concrete, hatches, and other appurtenances except electrical and control to the motor operator.

2.2.26 Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP Electrical and Instrumentation

The quantity of "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP Electrical and Instrumentation" measured for payment shall be lump sum.

The contract lump sum price for "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP Electrical and Instrumentation" shall be full compensation for furnishing all materials, labor, equipment and tools to install all conduits, cable, electrical supports, etc. to complete the work in accordance with the Plans and Specifications.

2.2.27 Oak Drive Line Motor Operated Valve and Valve Vault from Mulberry WWTP System Integration

The quantity of "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP System Integration" measured for payment shall be lump sum.

The contract lump sum price for "Oak Drive Line Valve and Valve and Vault from Mulberry WWTP System Integration" shall be full compensation for furnishing all materials, labor, equipment and tools to install perform all system integration required to provide a complete operating system in accordance with the Plans and Specifications.

2.2.28 Environmental Control Measures

The quantity of "Environmental Control Measures" measured for payment shall be lump sum.

The contract lump sum price for "Environmental Control Measures" shall be full compensation for furnishing all materials, labor, equipment and tools to comply with the environmental controls to mitigate noise, storm water runoff, preparation of the SWPPP document, dust control, and water quality.

2.2.29 Dye Testing

The quantity of "Dye Testing" measured for payment shall be lump sum.

The contract lump sum price for "Dye Testing" shall be full compensation for furnishing all materials, labor, equipment and tools to conduct dye tests at Industrial Blvd/95, Lake Havasu City Aquatic Center, Cypress Park, ASU campus, and Jack Hardie Park. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.30 All Other Work Not Included In Items 2.2.1 through 2.2.29

The quantity of "All Other Work Not Included in Items 2.2.1 through 2.2.29" measured for payment shall be per lump sum.

Payment for this item is the Contract per lump sum price for "All Other Work Not Included in Items 2.2.1 through 2.2.29" shall constitute full compensation for furnishing all materials, labor, equipment, and tools required to complete the project not specifically identified in Bid Items 2.2.1 through 2.2.29. This item also includes all work and materials necessary to complete the work in accordance with the Plans and Specifications.

2.2.31 Force Account

A force account has been established and is indicated in the Bid Form as a lump sum cost item. The value indicated in the Bid Form is to be included in the total bid price for the work. The Contractor shall not consider any monies indicated in the force account item as a part of his payment for the Work or profit or otherwise without written notification by the Owner.

2.3 Measurement Devices

- A.** Weigh Scales: Inspected, tested and certified by the applicable State Weights and Measures Department within the past year.
- B.** Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
- C.** Metering Devices: Inspected, tested and certified by the applicable State department within the past year.

2.4 Measurement by Weight

Measured by tons as described above.

2.5 Measurement by Volume

Measured by cubic dimension using mean length, width and height or thickness.

2.6 Measurement by Area

Measured by square dimension using mean length and width or radius.

2.7 Linear Measurement

Measured by linear dimension, at the item centerline or meanchord.

2.8 Stipulated Sum/Price Measurement

Items measured by lump sum or each, as appropriate, as a completed item or unit of the work.

2.9 Progress Payments

- A.** Contract provides for payment of 90% for completed work until final payment.
- B.** Partial pay estimates must be submitted to the Engineer no later than the 25th of each month. Pay estimates may only include work that has been completed at that time.

2.10 Final Payment

Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the ENGINEER multiplied by the unit sum/price for work which is incorporated in or made necessary by the Work.

PART 3 – DEFECT ASSESSMENT

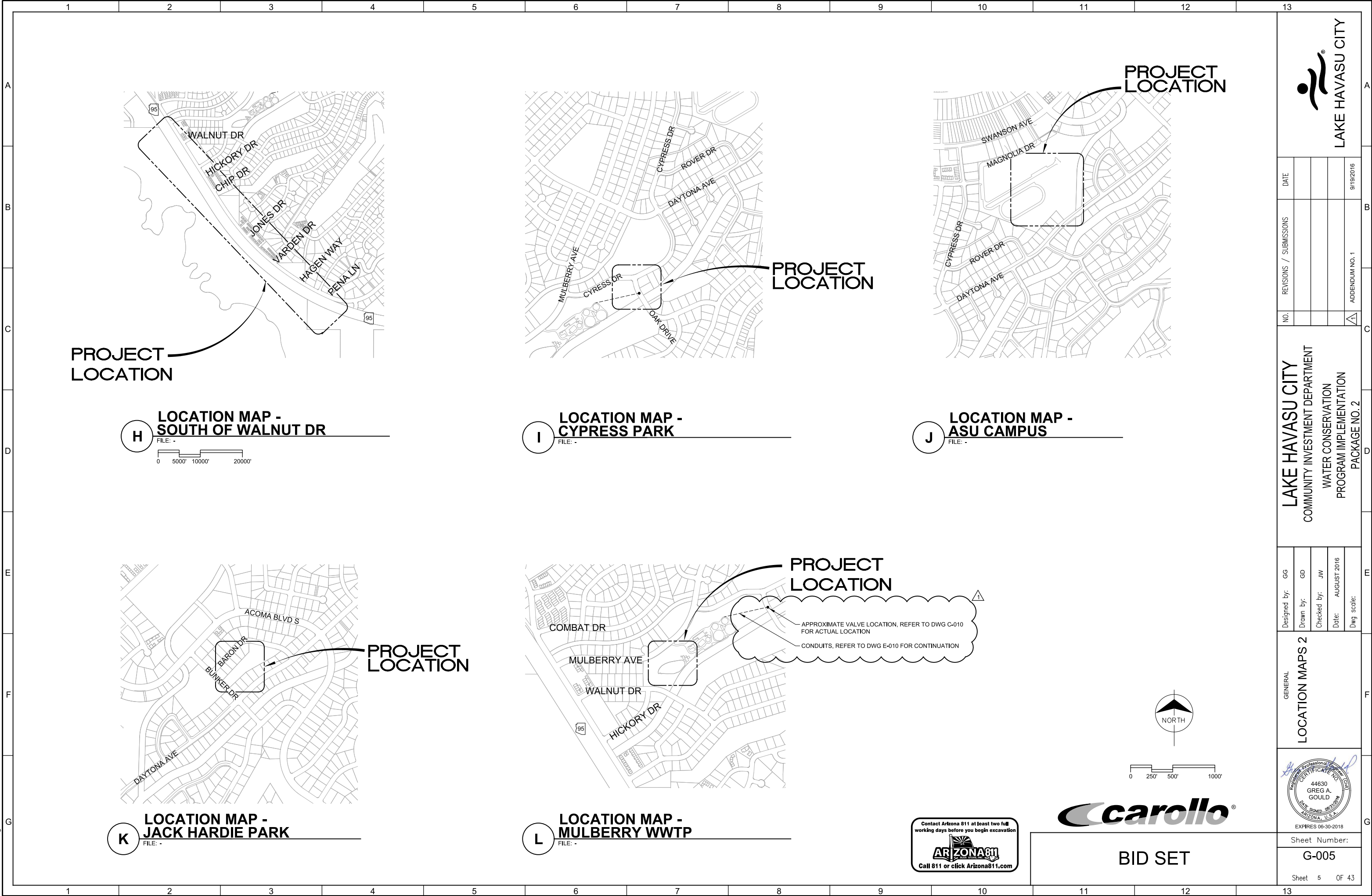
- 3.1** Replace the Work, or portions of the work, not conforming to specified requirements.
- 3.2** If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:
 - A.** The defective Work may remain, but the unit price will be adjusted to a new price at the discretion of the Engineer.
 - B.** The defective Work will be partially repaired to the instructions of the Engineer, and the unit price will be adjusted to a new price at the discretion of the Engineer.
- 3.3** The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.
- 3.4** The authority of the Engineer to assess the defect and identify payment adjustment is final.

PART 4 – NON-PAYMENT FOR REJECTED PRODUCTS

4.1 Payment will not be made for any of the following:

- A.** Products wasted or disposed of in a manner that is not acceptable.
- B.** Products determined as unacceptable before or after placement.
- C.** Products not completely unloaded from the transportation vehicle.
- D.** Products placed beyond the lines and levels of the required Work.
- E.** Products remaining on hand after completion of the Work.
- F.** Loading, hauling and disposing of rejected products.

****END OF SECTION 01210****



H LOCATION MAP -
SOUTH OF WALNUT DR
FILE: -
0 5000' 10000' 20000'

I LOCATION MAP -
CYPRESS PARK
FILE: -

J LOCATION MAP -
ASU CAMPUS
FILE: -

K LOCATION MAP -
JACK HARDIE PARK
FILE: -

L LOCATION MAP -
MULBERRY WWTP
FILE: -

PROJECT LOCATION

APPROXIMATE VALVE LOCATION, REFER TO DWG C-010 FOR ACTUAL LOCATION

CONDUITS, REFER TO DWG E-010 FOR CONTINUATION

Contact Arizona 811 at least two full working days before you begin excavation

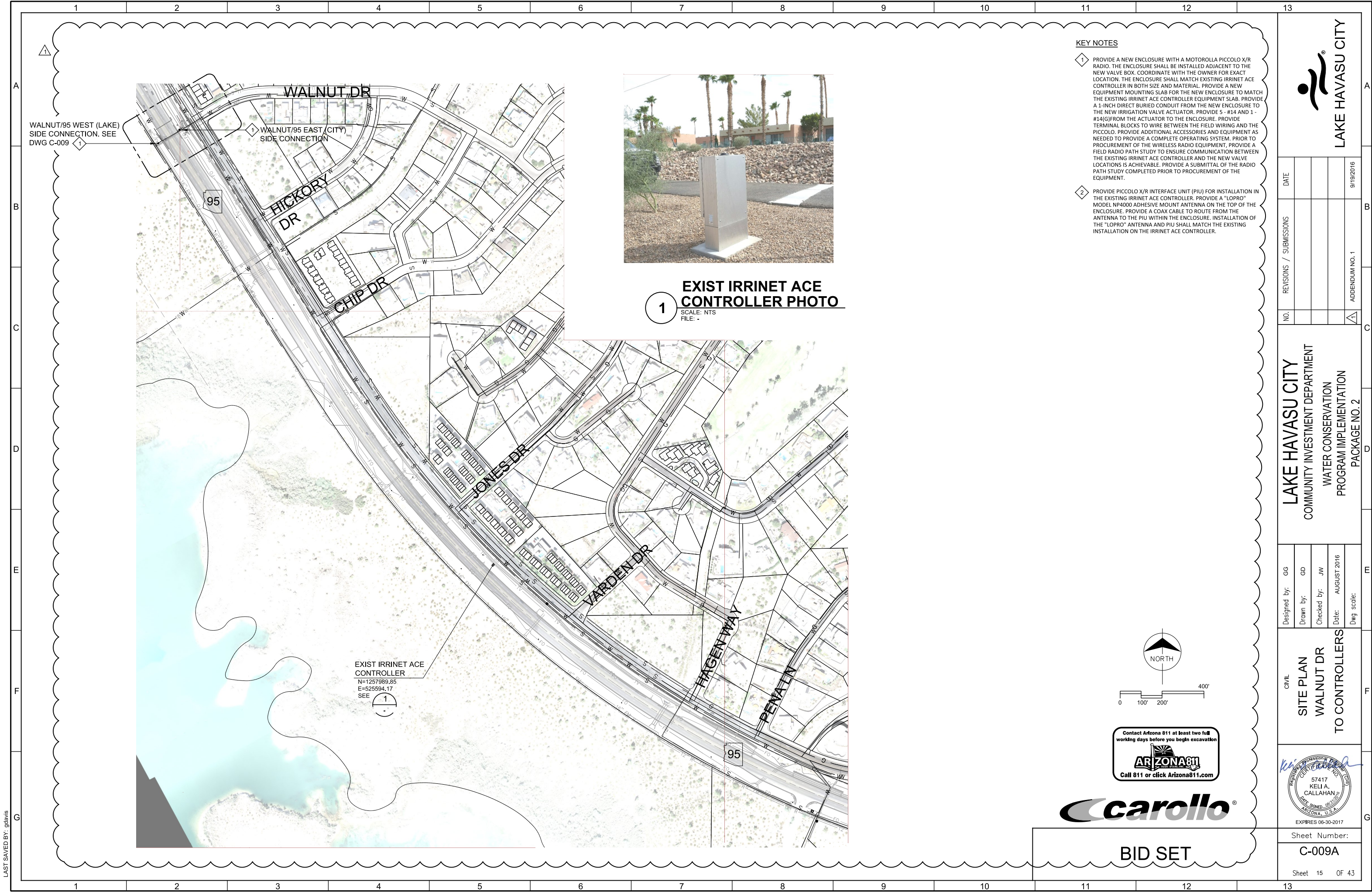
ARIZONA811

Call 811 or click Arizona811.com

carollo

BID SET

LAKE HAVASU CITY		DATE	
COMMUNITY INVESTMENT DEPARTMENT			
WATER CONSERVATION			
PROGRAM IMPLEMENTATION			
PACKAGE NO. 2		ADDENDUM NO. 1	
		9/19/2016	
LAKE HAVASU CITY			
COMMUNITY INVESTMENT DEPARTMENT			
WATER CONSERVATION			
PROGRAM IMPLEMENTATION			
PACKAGE NO. 2			
DESIGNED BY: GG			
DRAWN BY: GD			
CHECKED BY: JW			
DATE: AUGUST 2016			
DWG scale:			
GENERAL		LOCATION MAPS 2	
			
Sheet Number:		G-005	
Sheet		5 OF 43	



1 EXIST IRRINET ACE CONTROLLER PHOTO
SCALE: NTS
FILE: -

- KEY NOTES**
- 1 PROVIDE A NEW ENCLOSURE WITH A MOTOROLLA PICCOLO X/R RADIO. THE ENCLOSURE SHALL BE INSTALLED ADJACENT TO THE NEW VALVE BOX. COORDINATE WITH THE OWNER FOR EXACT LOCATION. THE ENCLOSURE SHALL MATCH EXISTING IRRINET ACE CONTROLLER IN BOTH SIZE AND MATERIAL. PROVIDE A NEW EQUIPMENT MOUNTING SLAB FOR THE NEW ENCLOSURE TO MATCH THE EXISTING IRRINET ACE CONTROLLER EQUIPMENT SLAB. PROVIDE A 1-INCH DIRECT BURIED CONDUIT FROM THE NEW ENCLOSURE TO THE NEW IRRIGATION VALVE ACTUATOR. PROVIDE 5 - #14 AND 1 - #14(G) FROM THE ACTUATOR TO THE ENCLOSURE. PROVIDE TERMINAL BLOCKS TO WIRE BETWEEN THE FIELD WIRING AND THE PICCOLO. PROVIDE ADDITIONAL ACCESSORIES AND EQUIPMENT AS NEEDED TO PROVIDE A COMPLETE OPERATING SYSTEM. PRIOR TO PROCUREMENT OF THE WIRELESS RADIO EQUIPMENT, PROVIDE A FIELD RADIO PATH STUDY TO ENSURE COMMUNICATION BETWEEN THE EXISTING IRRINET ACE CONTROLLER AND THE NEW VALVE LOCATIONS IS ACHIEVABLE. PROVIDE A SUBMITTAL OF THE RADIO PATH STUDY COMPLETED PRIOR TO PROCUREMENT OF THE EQUIPMENT.
 - 2 PROVIDE PICCOLO X/R INTERFACE UNIT (PIU) FOR INSTALLATION IN THE EXISTING IRRINET ACE CONTROLLER. PROVIDE A "LOPRO" MODEL NP4000 ADHESIVE MOUNT ANTENNA ON THE TOP OF THE ENCLOSURE. PROVIDE A COAX CABLE TO ROUTE FROM THE ANTENNA TO THE PIU WITHIN THE ENCLOSURE. INSTALLATION OF THE "LOPRO" ANTENNA AND PIU SHALL MATCH THE EXISTING INSTALLATION ON THE IRRINET ACE CONTROLLER.

LAKE HAVASU CITY

NO.	REVISIONS / SUBMISSIONS	DATE
1		9/19/2016

LAKE HAVASU CITY
COMMUNITY INVESTMENT DEPARTMENT
WATER CONSERVATION
PROGRAM IMPLEMENTATION
PACKAGE NO. 2

Designed by:	GG
Drawn by:	GD
Checked by:	JW
Date:	AUGUST 2016
Dwg scale:	

CIVIL
SITE PLAN
WALNUT DR
TO CONTROLLERS

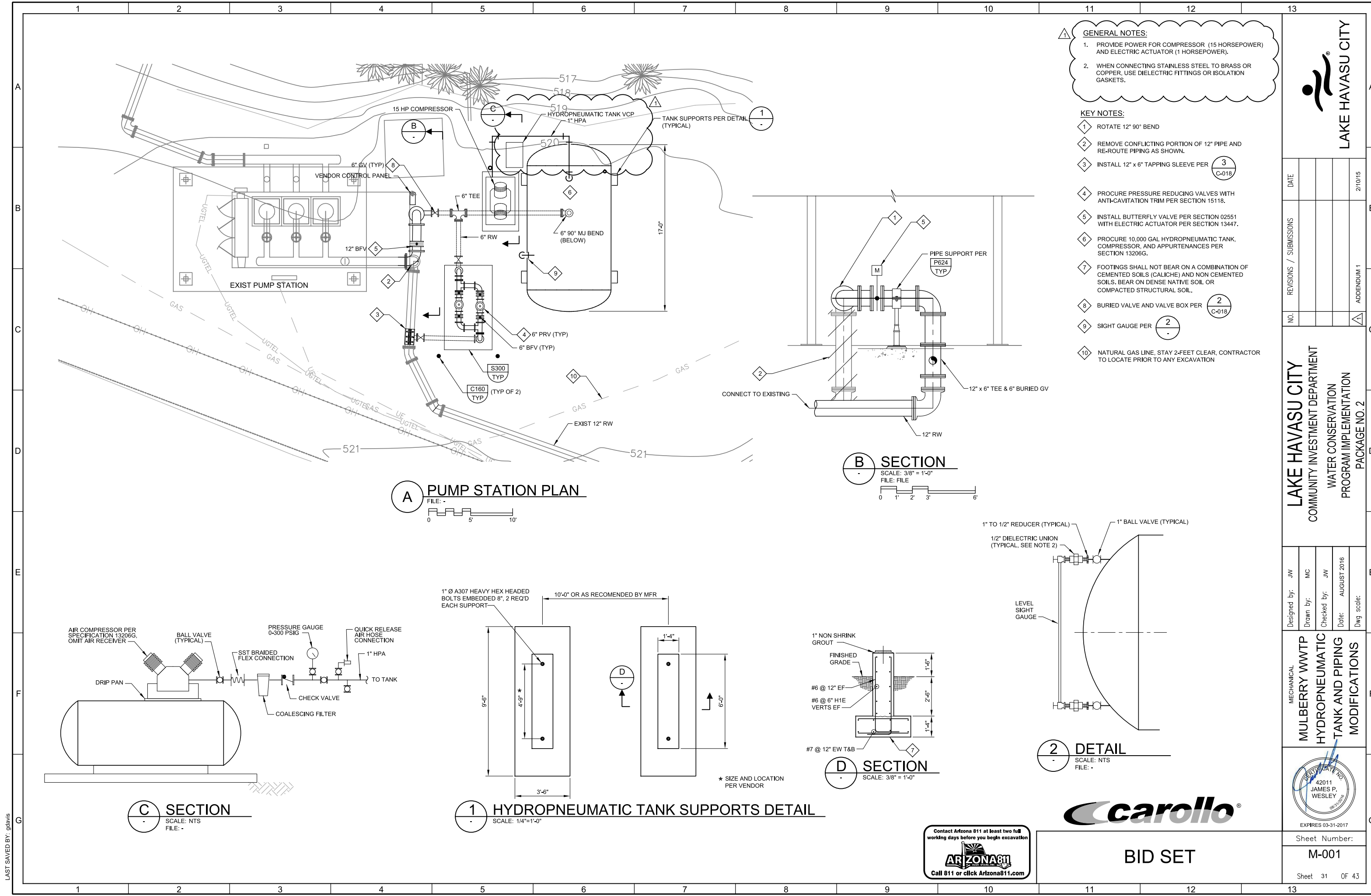
Sheet Number:
C-009A

Sheet 15 OF 43



BID SET

LAST SAVED BY: gdavis



- GENERAL NOTES:**
1. PROVIDE POWER FOR COMPRESSOR (15 HORSEPOWER) AND ELECTRIC ACTUATOR (1 HORSEPOWER).
 2. WHEN CONNECTING STAINLESS STEEL TO BRASS OR COPPER, USE DIELECTRIC FITTINGS OR ISOLATION GASKETS.
- KEY NOTES:**
- 1 ROTATE 12" 90° BEND
 - 2 REMOVE CONFLICTING PORTION OF 12" PIPE AND RE-ROUTE PIPING AS SHOWN.
 - 3 INSTALL 12" x 6" TAPPING SLEEVE PER C-018
 - 4 PROCURE PRESSURE REDUCING VALVES WITH ANTI-CAVITATION TRIM PER SECTION 15118.
 - 5 INSTALL BUTTERFLY VALVE PER SECTION 02551 WITH ELECTRIC ACTUATOR PER SECTION 13447.
 - 6 PROCURE 10,000 GAL HYDROPNEUMATIC TANK, COMPRESSOR, AND APPURTENANCES PER SECTION 13206G.
 - 7 FOOTINGS SHALL NOT BEAR ON A COMBINATION OF CEMENTED SOILS (CALICHE) AND NON CEMENTED SOILS. BEAR ON DENSE NATIVE SOIL OR COMPACTED STRUCTURAL SOIL.
 - 8 BURIED VALVE AND VALVE BOX PER C-018
 - 9 SIGHT GAUGE PER C-018
 - 10 NATURAL GAS LINE, STAY 2-FEET CLEAR, CONTRACTOR TO LOCATE PRIOR TO ANY EXCAVATION



LAKE HAVASU CITY

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LAKE HAVASU CITY
COMMUNITY INVESTMENT DEPARTMENT
WATER CONSERVATION
PROGRAM IMPLEMENTATION
PACKAGE NO. 2

Designed by:	JW
Drawn by:	MC
Checked by:	JW
Date:	AUGUST 2016
Dwg scale:	

MECHANICAL
MULBERRY WWTP
HYDROPNEUMATIC
TANK AND PIPING
MODIFICATIONS



EXPIRES 03-31-2017

Sheet Number:
M-001

Sheet 31 OF 43



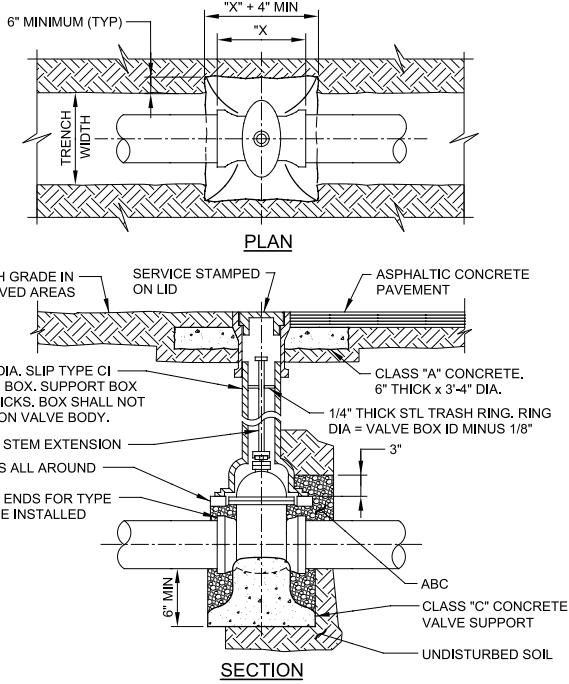
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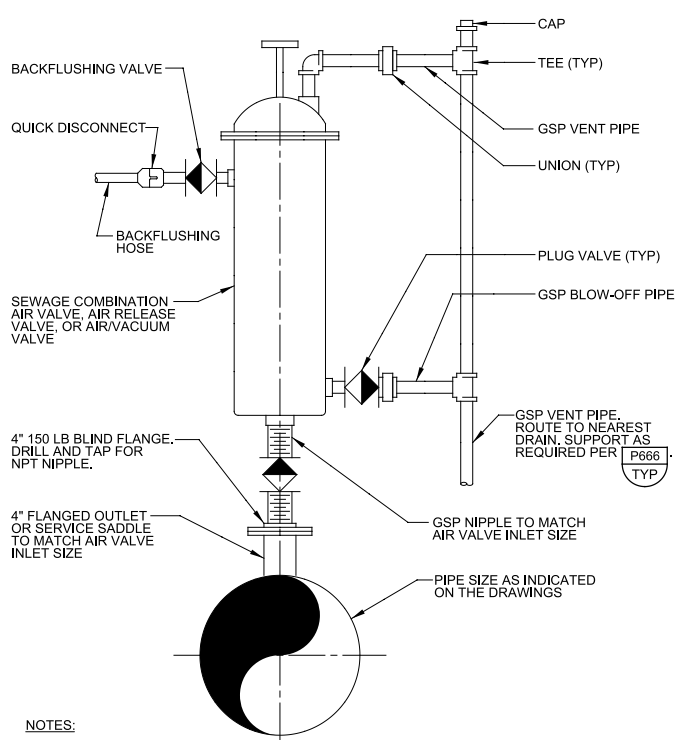
LAST SAVED BY: gdavis



- NOTES:
1. ALL BURIED VALVES SHALL BE PROVIDED WITH EXTENSION STEM OPERATION WITH 2" SQUARE AWWA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
 2. COAT BURIED PIPE AND VALVE BOX AS SPECIFIED.
 3. CLEAN VALVE BOX OF ALL DEBRIS AND SOIL.
 4. VALVE TYPE AS INDICATED ON THE DRAWINGS.

P022 VALVE BOX INSTALLATION
TYP

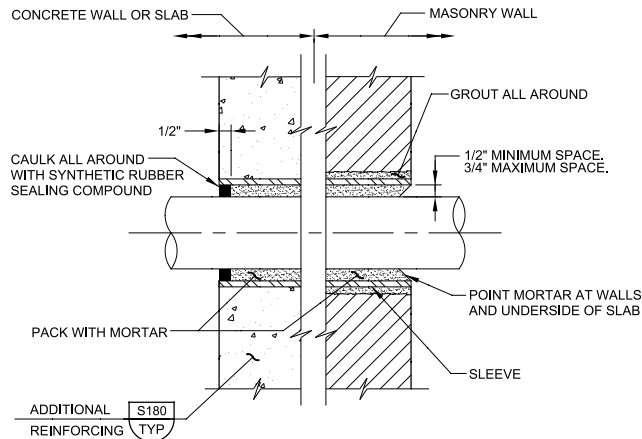
08/01/05



- NOTES:
1. VALVE SIZE SHALL BE AS INDICATED ON THE DRAWINGS.
 2. SERVICE TAP AND PLUG VALVE SHALL MATCH VALVE INLET SIZE.
 3. GSP VENT AND BLOW OFF PIPING SHALL MATCH VALVE OUTLET SIZE.

P242 SEWAGE AIR VALVE FOR 3" AND SMALLER
TYP

03/01/10

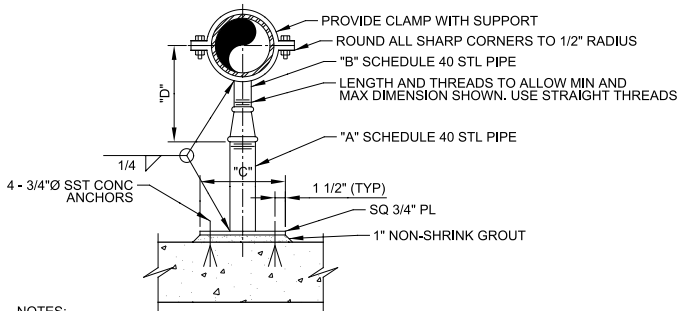


- NOTES:
1. 6"Ø DIAMETER SLEEVES AND SMALLER SHALL BE SCHEDULE 40 STEEL PIPE OR SCHEDULE 80 PVC PIPE.
 2. SLEEVES LARGER THAN 6"Ø SHALL BE 1/4" THICK STEEL PIPE.
 3. STEEL SLEEVE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
 4. SLEEVES FOR ELECTRICAL CONDUIT SHALL BE SCHEDULE 80 PVC.

P302 SLEEVE INSTALLATION THROUGH DRY WALLS AND FLOOR SLABS
TYP

08/01/05

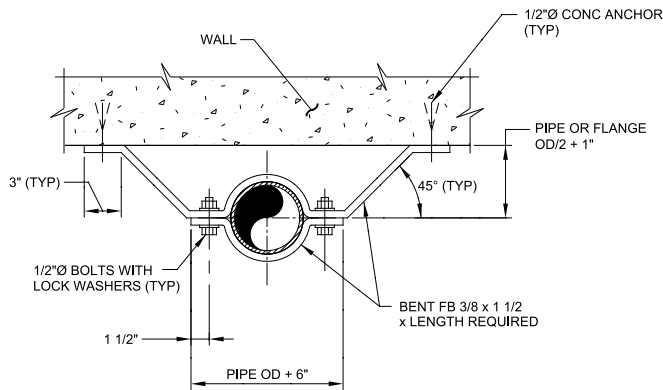
ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE (INCHES)					
SIZE OF SUPPORTED PIPE **	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D"	
				MINIMUM	MAXIMUM
2 1/2 *	2 1/2	1 1/2	12	8	13
3	2 1/2	1 1/2	12	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	12	8 1/2	13 1/2
4	3	2 1/2	12	9 1/2	14
6	3	2 1/2	12	10 1/2	15 1/2
8	3	2 1/2	12	11 1/2	16 1/2
10	3	2 1/2	12	13 1/2	18 1/2
12	3	2 1/2	12	15	19 1/2
14	4	3	12	16 1/2	20 1/2
16	4	3	12	17 1/2	22 1/2
18	6	3 1/2	14	19 1/2	24
20	6	3 1/2	14	21	25 1/2
24	6	4	14	23 1/2	28 1/2
30	6	4	14	27	31 1/2
32	6	4	14	28 1/2	32 1/2
36	6	4	14	30 1/2	34 1/2



- NOTES:
1. HOT-DIP GALVANIZED SUPPORT AFTER FABRICATION.
 2. * = USE 2 1/2" SUPPORTS FOR PIPES LESS THEN 2 1/2"Ø.
 3. ** = NOMINAL PIPE SIZE.

P624 ADJUSTABLE PIPE SUPPORT
TYP

09/04/13



- NOTE:
1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

P666 VERTICAL PIPE SWAY BRACE
TYP

07/31/08

carollo®

BID SET

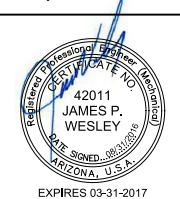
LAKE HAVASU CITY

NO.	REVISIONS / SUBMISSIONS	DATE
1		9/19/2016

LAKE HAVASU CITY
COMMUNITY INVESTMENT DEPARTMENT
WATER CONSERVATION
PROGRAM IMPLEMENTATION
PACKAGE NO. 2

Designed by: GG	Drawn by: GD	Checked by: JW	Date: AUGUST 2016	Dwg scale:
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TYPICAL
DETAILS



Sheet Number:

T-002

Sheet 34 OF 43

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LAST SAVED BY: Inorabito

1	2	3	4	5	6	7	8	9	10	11	12	13																			
<div>MISCELLANEOUS</div> <div><div>1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE ENTIRE ELECTRICAL AND CONTROL SYSTEMS BE COMPLETE AND OPERATING, INCLUDING ALL NECESSARY MATERIAL AND LABOR FOR THE COMPLETE CONNECTION FROM SOURCE OF POWER TO FINAL UTILIZATION EQUIPMENT, WHETHER OR NOT SPECIFICALLY MENTIONED BUT WHICH ARE NECESSARY FOR SUCCESSFUL OPERATION. ANY ITEMS OMITTED BUT OBVIOUSLY REQUIRED FOR SUCCESSFUL OPERATION OF THE ELECTRICAL AND CONTROL SYSTEMS SHALL BE FURNISHED AND INSTALLED.</div><div>2. REVIEW ALL DRAWINGS FOR REQUIRED ELECTRICAL AND CONTROL SYSTEM WORK. ELECTRICAL WORK IS SPECIFIED ON CIVIL AND MECHANICAL DRAWINGS, IN ADDITION TO THE ELECTRICAL DRAWINGS.</div><div>3. PERFORM ALL WORK TO MEET THE REQUIREMENTS OF ALL LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION INCLUDING ALL STATE, CITY, AND COUNTY AUTHORITIES. ALL WORK SHALL BE PERFORMED SO AS TO COMPLY WITH THE LATEST EDITIONS, AMENDMENTS, PRACTICES, AND RULING OF THE NATIONAL ELECTRICAL CODE (NFPA NO 70), THE UNIFORM BUILDING CODE, AND THE LIFE SAFETY CODE.</div><div>4. THE CONTRACTOR MAY MAKE WRITTEN APPLICATION TO THE ENGINEER TO SUBSTITUTE FOR THE SPECIFIED ITEMS. REQUEST FOR SUBSTITUTION MUST BE MADE IN WRITING TO THE ENGINEER WITHIN FIFTEEN (15) DAYS AFTER THE EFFECTIVE DATE OF THE AGREEMENT, AND MUST CONTAIN MODEL, TYPE, OR STYLE NUMBER, CATALOG SHEETS, STANDARDS, AND ALL PERTINENT DATA FOR EACH SUBSTITUTION REQUESTED. ENGINEER'S DECISIONS OF ACCEPTABILITY OF SUBSTITUTIONS OR MODIFICATIONS IS FINAL.</div><div>5. THE DRAWINGS INDICATE, IN A DIAGRAMMATIC MANNER, THE DESIRED LOCATIONS, AND ARRANGEMENTS OF THE COMPONENTS OF THE ELECTRICAL WORK. FOLLOW THE DRAWINGS AS CLOSELY AS POSSIBLE, BUT USE JUDGEMENT AND COORDINATE WITH THE OTHER TRADES TO SECURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND UNDER THE DEVELOPED CONDITIONS.</div><div>6. BEFORE INSTALLING ANY CONDUIT OR LOCATING ANY ELECTRICAL EQUIPMENT, EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND VERIFY ALL DIMENSIONS AND SPACE REQUIREMENTS. MAKE SUCH MINOR ADJUSTMENTS THAT MAY BE NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE OR THE WORK OF OTHER TRADES.</div><div>7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY ALL DRAWINGS AND SPECIFICATIONS AND TO REPORT ANY ERRORS, OMISSIONS, AND/OR POINTS OF CONFLICT WITH OTHER TRADES PRIOR TO BIDDING.</div><div>8. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING AND EXAMINE THE PREMISES CAREFULLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FULLY FAMILIAR WITH THE EXISTING CONDITIONS AND LOCAL ELECTRICAL REQUIREMENTS AND REGULATIONS. DIFFICULTIES THAT ARISE AFTER THE CONTRACT HAS BEEN AWARDED WHICH COULD HAVE BEEN AVOIDED BY A MORE COMPLETE INITIAL SITE VISIT ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CORRECTED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.</div><div>9. EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, PROVIDE ONLY NEW MATERIALS HAVING ALL LEGALLY REQUIRED APPROVALS AND/OR LABELS. ITEMS OF SIMILAR NATURE MUST BE OF THE SAME TYPE AND MANUFACTURER.</div><div>10. EQUIPMENT OR MATERIAL DAMAGED PRIOR TO FINAL INSPECTION AND ACCEPTANCE BY THE ENGINEER SHALL BE REPLACED IN A MANNER APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.</div><div>11. DO ALL CUTTING, PATCHING, CHANNELING, CORE DRILLING, AND FITTING REQUIRED OF THE ELECTRICAL WORK, EXCEPT AS OTHERWISE DIRECTED, SECURE THE PERMISSION OF THE ENGINEER BEFORE PERFORMING ANY OPERATION LIKELY TO AFFECT THE STRENGTH OF A STRUCTURAL MEMBER.</div><div>12. PROTECT ELECTRICAL WORK AT ALL TIMES FROM DAMAGE, DEFACEMENT, OR DETERIORATION FROM ANY CAUSE. WHATSOEVER, PROVIDE PROPER STORAGE FACILITIES AND CONDUCT OPERATIONS TO THIS EFFECT. PERFORM ELECTRICAL WORK IN SUCH A MANNER AS TO PROTECT THE WORK OF OTHER TRADES. REPAIR OR REPLACE DAMAGED ELECTRICAL WORK AND BE RESPONSIBLE FOR THE CORRECTION OF ANY DAMAGE DONE IN THE PERFORMANCE OF THE ELECTRICAL WORK TO THE WORK OF OTHER TRADES.</div><div>13. THE CONTRACTOR SHALL ABIDE BY ALL SECURITY RULES AND OTHER RULES CONCERNING THE USE OF THE EXISTING PREMISES AS DICTATED BY THE OWNER.</div><div>14. KEEP OUTAGES TO OCCUPIED AREAS TO A MINIMUM AND PREARRANGE ALL OUTAGES WITH THE OWNER'S REPRESENTATIVE. REQUESTS FOR OUTAGES SHALL STATE THE SPECIFIC DATES AND HOURS AND THE MAXIMUM DURATION, WITH THE OUTAGES KEPT TO THESE SPECIFIC TIMES. CONTRACTOR WILL BE LIABLE FOR ANY DAMAGES RESULTING FROM UNSCHEDULED OUTAGES OR FOR THOSE NOT CONFINED TO THE PRE-APPROVED TIMES. INCLUDE ALL COSTS FOR OVERTIME LABOR AS NECESSARY TO MAINTAIN ELECTRICAL SERVICES IN THE INITIAL BID PROPOSAL. TEMPORARY WIRING AND FACILITIES, IF USED, SHALL BE REMOVED AND THE SITE LEFT CLEAN BEFORE FINAL ACCEPTANCE.</div><div>15. WHEN THE WORK IS SUBSTANTIALLY COMPLETE, AND AT A TIME SELECTED BY THE OWNER'S REPRESENTATIVE, CONDUCT AN OPERATING TEST IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, THAT DEMONSTRATES THAT ALL EQUIPMENT AND SYSTEMS OPERATE IN ACCORDANCE WITH REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AND ARE FREE OF ELECTRICAL AND MECHANICAL DEFECTS.</div><div>16. THE CONTRACTOR SHALL FURNISH TWO SETS OF OPERATING MANUALS WITH A NARRATIVE DESCRIPTION OF OPERATION. AFTER THE OPERATIONAL TESTS, THE CONTRACTOR SHALL SUBMIT REVISED MATERIALS FOR THESE MANUALS TO ADDRESS ALL CHANGES REQUESTED BY THE ENGINEER AND ALL CHANGES MADE DURING TESTING AND START UP, PLUS TWO ADDITIONAL COMPLETE MANUALS.</div><div>17. THE CONTRACTOR WILL FURNISH A WRITTEN GUARANTEE TO THE OWNER, EFFECTIVE FOR A PERIOD OF TIME AS DEFINED BY THE GENERAL CONDITIONS FOR ALL WARRANTY REQUIREMENTS.</div><div>18. THE ELECTRICAL DRAWINGS SHALL NOT BE USED FOR ROOM DIMENSIONS, OR EQUIPMENT PLACEMENT, REFERENCE THE APPROPRIATE MECHANICAL PLANS. DRAWINGS ARE SCHEMATIC VERIFY ALL LOCATIONS WITH FIELD ENGINEER BEFORE INSTALLING CONDUIT, EQUIPMENT, ETC.</div><div>19. DETAILS ARE TYPICAL OF THE INSTALLATION. HOWEVER NOT EVERY SITUATION CAN BE DETAILED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE INSTALLATION AND TO PROVIDE THE PROPER INSTALLATION FOR ANY GIVEN SITUATION, WHICH MAY VARY, FROM THE DETAILS OR THE DRAWINGS. CONTRACTORS ARE ADVISED TO COMPLETELY SURVEY THE WORK AREA FOR PROBLEM SITUATIONS ETC.</div><div>20. IN CASE OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND THE OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING AND THE ENGINEER SHALL REVIEW THE PROPOSED CHANGES BEFORE THEY ARE MADE.</div><div>21. PACKAGE EQUIPMENT. SOME CONDUITS AND WIRE ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATIONS MAY REQUIRE SOME ADDITIONAL CONDUITS AND WIRES. IT IS INCUMBENT UPON THE CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH THEIR SUBCONTRACTORS TO MAKE SURE THAT THE EQUIPMENT SUPPLIER PROVIDES ALL NECESSARY ELECTRICAL INFORMATION. THE ELECTRICAL SUBCONTRACTOR FOR INCLUSION OF COSTS IN BID PACKAGE. ALL NECESSARY MATERIALS AND LABOR TO COMPLETE ELECTRICAL INSTALLATION SHALL BE PROVIDED WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH ALL CODES AND STANDARDS. ANY ADDITIONS OR DELETIONS MUST BE SHOWN ON THE RECORD DRAWINGS.</div></div> <div><div>22. EQUIPMENT DIMENSIONS SHOWN ON PLANS AND ELEVATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE THE SHOP DRAWINGS FOR PROPER LAYOUT AND FINAL INSTALLATION. FOUNDATION AND PAD, ETC., ANY SUCH MODIFICATIONS SHALL BE WITHOUT ANY ADDITIONAL COST TO THE OWNER.</div><div>23. PROVIDE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE FOLLOWING TABLE, UNLESS OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS:</div><table><thead><tr><th>PLANT AREA</th><th>NEMA ENCLOSURE TYPE</th><th>EXPOSED CONDUIT TYPE</th><th>ENVIRONMENT W = WET D = DAMP C = CLEAN/DRY X = CORROSIVE H = HAZARDOUS</th><th>SUPPORT MATERIALS</th></tr></thead><tbody><tr><td>ELECTRICAL ROOMS</td><td>NEMA 12</td><td>GRC</td><td>C</td><td>GALVANIZED STEEL</td></tr><tr><td>MULBERRY & ISLAND WWTP OUTDOOR AREAS</td><td>NEMA 4X</td><td>PCS</td><td>X</td><td>STAINLESS STEEL</td></tr><tr><td>OUTDOOR AREAS FOR IRRIGATION</td><td>NEMA 4</td><td>GRC</td><td>W</td><td>GALVANIZED STEEL</td></tr></tbody></table><div>24. RACEWAY AND ENCLOSURES</div><div><div>1. PROVIDE ONLY NEW CONDUIT WITH UL LISTING OR LABEL AND DELIVER TO THE SITE IN STANDARD LENGTHS. UNLESS OTHERWISE INDICATED, PROVIDE CONDUITS FOR ALL TYPES OF CONDUCTORS OR CABLES FOR ALL SYSTEMS AND VOLTAGE. ALL CONDUITS MUST BE REAMED CLEAR AND FREE OF ANY BURRS BEFORE INSTALLATION.</div><div>2. CONDUIT SIZES NOT INDICATED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS AND SHALL BE SIZED BASED ON QUANTITIES AND SIZES OF WIRE INSTALLED THEREIN. INCREASE CONDUIT SIZE AS REQUIRED TO ACCOMMODATE THE MANDATORY GROUNDING CONDUCTOR. INSTALLED THEREIN, A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IS MANDATORY IN ALL RACEWAYS. THE CONDUIT SYSTEM IS NOT AN ALLOWABLE GROUND.</div><div>3. GALVANIZED RIGID CONDUIT MANUFACTURED IN ACCORDANCE WITH UL-6 AND ANSI C80.1. HOT-DIP GALVANIZED INSIDE AND OUT. ELECTRO-GALVANIZING IS NOT ACCEPTABLE. ALL THREADS SHALL BE NPT STANDARD CONDUIT THREADS WITH 3/4-INCH TAPER PER FOOT. RUNNING CONDUIT THREADS ARE NOT ACCEPTABLE.</div><div>4. LIQUIDTIGHT FLEXIBLE CONDUIT MANUFACTURED FROM SINGLE STRIP STEEL HOT DIP GALVANIZED ON ALL FOUR SIDES PRIOR TO CONDUIT FABRICATION WITH OVERALL POLYVINYL CHLORIDE PLASTIC JACKET. PROVIDE INSULATING CONNECTORS, APPLETON STN SERIES, OR EQUAL. USE LIQUIDTIGHT FLEXIBLE CONDUIT: WHERE INDICATED; FOR FINAL CONNECTIONS TO MOTORS; VIBRATING EQUIPMENT; WHERE REQUIRED FOR EQUIPMENT SERVICING, IN KITCHENS, DAMP LOCATIONS, OR AREAS EXPOSED TO THE WEATHER, USE LIQUIDTIGHT TYPE OF FLEXIBLE CONDUIT PROVIDED THE JACKET TEMPERATURE LIMITATIONS WILL NOT BE EXCEEDED. SIZE ALL CONDUITS AS LEGALLY REQUIRED OR LARGER WHERE INDICATED OR PREFERRED, WHERE PORTIONS OF A CONDUIT RUN ARE INCREASED IN SIZE, FOR WHATEVER REASON, MAKE ALL REMAINING PORTION IN THAT RUN THE SAME SIZE. THE MAXIMUM ALLOWABLE LENGTH OF FLEXIBLE METALLIC CONDUIT SHALL NOT EXCEED 18 INCHES.</div><div>5. EXCEPT AS OTHERWISE INDICATED, PROVIDE THE TYPE OF CONDUIT LEGALLY PERMITTED OR REQUIRED FOR EACH LOCATION OR CONDITION.</div><div>6. USE GALVANIZED RIGID CONDUIT WITH METALLIC INSULATED BUSHINGS.</div><div>7. SUPPORT CONDUIT AT LEGAL INTERVALS, AS SPECIFIED BY THE NATIONAL ELECTRICAL CODE. PROVIDE ADDITIONAL SUPPORTS WHERE OBVIOUSLY REQUIRED OR AS DIRECTED. PERFORATED STRAP OR PLUMBERS TAPE ARE NOT ACCEPTABLE FOR CONDUIT SUPPORTS. DO NOT INSTALL ONE INCH OR LARGER RACEWAYS IN OR THROUGH STRUCTURAL MEMBERS UNLESS APPROVED BY ENGINEER. REPLACE ANY DENTED OR DAMAGED CONDUIT. SUPPORTS AT STRUCTURAL STEEL MEMBERS USE BEAM CLAMPS, DRILLING OR WELDING MAY BE USED ONLY AS NECESSARY.</div><div>8. ROUTE CONDUIT TO AVOID DRAINS OR OTHER GRAVITY LINES, WHERE CONFLICTS OCCUR, RELOCATE CONDUIT AS REQUIRED. KEEP CONDUIT AT LEAST 6" FROM THE COVERINGS ON HOT WATER AND STEAM PIPES AND AT LEAST 18" FROM THE COVERINGS OF FLUES AND BREACHING, AND AT LEAST 12" FROM FUEL LINES AND GAS LINES. RUN CONDUIT EXPOSED TO VIEW PARALLEL WITH OR AT RIGHT ANGLES TO STRUCTURAL MEMBERS, WALLS, OR LINES OF THE BUILDING. ROUTE ALL EXPOSED CONDUIT TO PRESERVE HEADROOM ACCESS SPACE AND WORK SPACE. TURN CONDUITS WITH NEAT SYMMETRICAL BENDS. WHEN INSTALLING CONDUIT THROUGH EXISTING SLABS OR WALLS MAKE PROVISIONS FOR LOCATING POSSIBLE CONFLICTING ITEMS WHERE CONDUIT IS TO PENETRATE. USE TONE SIGNAL OR X-RAY METHODS TO INSURE THAT NO PENETRATIONS WILL BE MADE INTO EXISTING CONDUIT, PIPING, CABLES, POST-TENSION CABLES, ETC.</div><div>9. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.</div><div>10. CONDUIT FITTINGS AND SUPPORT ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL FURNISH ALL SUPPORT CHANNELS, CLAMPS, HARDWARE, ETC. MATERIAL TO BE SUITABLE FOR THE AREA WHERE THEY ARE TO BE INSTALLED. ENGINEER WILL GUIDE CONTRACTOR IN SUPPORTING EQUIPMENT NOT DETAILED IN THE PLANS.</div><div>11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SLEEVES AND OPENINGS REQUIRED FOR THE PASSAGE OF ELECTRICAL RACEWAYS OR CABLES EVEN WHEN THESE OPENINGS OR SLEEVES ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS.</div><div>12. THE MINIMUM SIZE OF CONDUITS INSTALLED BELOW GRADE SHALL BE 1" UNLESS OTHERWISE STATED.</div><div>13. THE MINIMUM SIZE OF CONDUIT INSTALLED ABOVE GRADE SHALL BE 3/4" UNLESS OTHERWISE NOTED.</div><div>14. LABEL EACH CONDUIT AT BOTH ENDS WITH CONDUIT NUMBERS, COORDINATE CONDUIT NUMBERING REQUIREMENT WITH THE ENGINEER AND OWNER DURING CONSTRUCTION</div><div>15. ALL CONDUIT PENETRATING EXTERIOR WALLS MUST HAVE A WATER TIGHT CONDUIT PENETRATION SEAL INSTALLED.</div><div>16. ALL PCS CONDUIT SHALL BE ROBROY RED H2OT OR OCAL BLUE AND SHALL BE INSTALLED USING TOOLING AS RECOMMENDED BY THE CONDUIT MANUFACTURER. PCS CONDUIT SHALL BE USED FOR ALL EXPOSED CONDUIT, STUB-UP AND RISERS TO GRADE FLOOR OR EQUIPMENT FROM NONMETALLIC CONDUITS, ENTERING AND EXISTING UNDERGROUND CONDUIT RUNS A MINIMUM 12-INCHES ABOVE AND BELOW GRADE AND FOR ALL UNDERGROUND BENDS WHERE THE TOTAL DEFLECTION IS GREATER THAN 45 DEGREES. USE PVC-COATED FITTINGS FOR PCS CONDUITS.</div><div>17. ALL PVC40 CONDUIT SHALL BE EXTRUDED FROM VIRGIN PVC COMPOUND, RATED FOR 90 DEGREES CELSIUS CABLES AND RATED FOR USE IN DIRECT SUNLIGHT.</div></div><div>25. WIRES, CABLES, CONNECTORS</div><div><div>1. PROVIDE NEW CONDUCTORS MANUFACTURED WITHIN 1 YEAR OF THE DATE OF DELIVERY TO THE SITE. STORE CONDUCTORS OUT OF THE WEATHER AND WHERE NOT SUBJECT TO DAMAGE OR OTHER DELETERIOUS CONDITIONS. UNLESS SPECIFICALLY INDICATED OTHERWISE, CONDUCTOR SIZES ARE FOR SOFT DRAWN COPPER, MINIMUM 98% CONDUCTIVITY.</div></div></div> <div><div>2. EXCEPT AS INDICATED, PROVIDE MINIMUM SIZE NO. 12 AWG CONDUCTORS WITH MINIMUM INSULATION RATING OF 600 VOLTS. CONDUCTORS NO. 1 AWG AND SMALLER SHALL BE STRANDED AND USE DUAL RATED THWN/THHN INSULATION, UNLESS OTHERWISE INDICATED. CONDUCTORS NO. 1/0 AWG AND LARGER OR THOSE INSTALLED UNDERGROUND SHALL BE STRANDED WITH TYPE XHHW INSULATION, UNLESS OTHERWISE.</div><div>3. WHERE A COMMON NEUTRAL IS RUN FOR TWO OR THREE HOME RUN CIRCUITS, PHASE CONDUCTORS SHALL BE CONNECTED TO BREAKERS IN THE PANEL WHICH ARE ATTACHED TO SEPARATE PHASE LEGS IN ORDER THAT THE NEUTRAL CONDUCTORS WILL CARRY ONLY THE UNBALANCED CURRENT. NEUTRAL CONDUCTORS SHALL BE OF THE SAME SIZE AS THE PHASE CONDUCTORS UNLESS SPECIFICALLY NOTED OTHERWISE.</div><div>4. INSTALL WIRES IN ONLY APPROVED RACEWAYS. PULL IN WIRE WITH AN APPROVED WIRE PULLING LUBRICANT, EQUAL TO IDEAL "YELLOW", EFCOR WGY, POLYWATER, OR EQUAL AS RECOMMENDED BY CABLE MANUFACTURER FOR ALL WIRE NO. 4 AND LARGER, OR WHERE NECESSARY. DO NOT USE OIL, GREASE OR SIMILAR SUBSTANCES. DO NOT INSTALL WIRE IN INCOMPLETE CONDUIT RUNS, UNTIL AFTER THE CONCRETE WORK AND PLASTERING IS COMPLETED. UNTIL AFTER ALL MOISTURE IS SWABBED FROM CONDUITS, BEFORE INSTALLING CONDUCTOR, REMOVE DEBRIS AND MOISTURE FORM CONDUIT AND EQUIPMENT ENCLOSURES.</div><div>5. NEATLY ARRANGE AND LACE CONDUCTORS IN CONTROL PANELS, SWITCHBOARDS, PANELBOARDS, GUTTERS AND TERMINAL CABINETS USING WIRE TIES AS MANUFACTURED BY TY-RAP, PANDUIT, ETC.</div><div>6. ONLY COMPRESSION TYPE CONNECTORS ARE ALLOWED FOR WIRE SPLICES (NO TWIST ON CONNECTORS ARE ALLOWED I.E., WIRENUTS, SCOTCH- LOCKS, ETC.). USE BUCHANAN COMPRESSION SPLICE CAPS (TYPICALLY NUMBER 2006S, ETC.) FOR WIRE NO. 10 AWG AND SMALLER. USE BURNDY "VERSITAPS" AND HEAVY-DUTY CONNECTORS, O.Z. SOLDERLESS CONNECTORS; EQUIVALENT BY BUCHANAN, KEARNEY, OR PENN UNION, FOR WIRE NO. 8 AWG AND LARGER. MAKE ALL CONNECTIONS WITH THE PROPER TOOL AND DIE AS SPECIFIED BY THE DEVICE MANUFACTURER. USE ONLY TOOLING AND DIES MANUFACTURED BY THE DEVICE MANUFACTURER. INSULATE ALL CONNECTIONS AND SPLICES WITH PREMOLDED PLASTIC COVERS, OR HEAT SHRINK TUBING AND CAPS.</div><div>7. EVERY WIRE SHALL BE MARKED AT BOTH ENDS OF THE CONDUCTOR, AT ALL TERMINAL BLOCKS AND FINAL DESTINATION EQUIPMENT. USE MACHINE PRINTED HEAT SHRINK SLEEVE TYPE MARKERS. HAND MARKING IS NOT ACCEPTABLE. VERIFY WITH THE ENGINEER WHAT WIRE IDENTIFICATION SYSTEM SHALL BE USED IF NOT DESCRIBED WITHIN THESE DRAWINGS.</div></div> <div>GROUNDING</div> <div><div>1. THE CONDUIT SYSTEM IS NOT ALLOWED FOR EQUIPMENT GROUNDING. INSTALL A SEPARATE GREEN EQUIPMENT GROUND WIRE IN EACH CONDUIT AND BOND TO EQUIPMENT AT BOTH ENDS. SIZE AS PER N.E.C., UNLESS OTHERWISE NOTED.</div><div>2. ALL METALLIC STRUCTURES, METALLIC ENCLOSURES, AND ELECTRICAL EQUIPMENT SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED AND GROUND CONNECTIONS SHALL BE MADE TO THE PLANT GROUND GRID. THE GROUND CONDUCTOR SHALL BE SIZED PER N.E.C. UNLESS OTHERWISE NOTED.</div></div> <div>EQUIPMENT</div> <div><div>1. ALL CIRCUIT BREAKERS SHALL BE MANUFACTURED PER UL 489.</div><div>2. PANELBOARDS SHALL MANUFACTURED BY EATON, GE, OR SCHNEIDER ELECTRIC, NO EQUALS. PANELBOARDS SHALL BE PROVIDED WITH TIN PLATED COPPER BUS. PROVIDE WITH DEAD FRONT CONSTRUCTION WITH LOCKABLE HINGED DOOR.</div></div> <div>CONSTRUCTION</div> <div><div>1. REMOVE OR RELOCATE ALL ELECTRICAL WIRING, EQUIPMENT, FIXTURES, ETC., WHICH MAY BE ENCOUNTERED IN REMOVED OR REMODELED AREAS IN THE EXISTING AREAS EFFECTED BY THIS WORK. WIRING WHICH SERVES USABLE EXISTING OUTLETS SHALL BE RESTORED AND ROUTED CLEAR OF THE CONSTRUCTION OR DEMOLITION. REMOVE ALL UNUSED WIRE AND CONDUIT AND LEAVE SITE CLEAN. REMOVED MATERIALS NOT SCHEDULED FOR REUSE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE.</div><div>2. DO ALL PATCHING TO THE SAME QUALITY AND APPEARANCE AS THE ORIGINAL WORK AND WHERE REQUIRED OR DIRECTED, EMPLOY THE PROPER TRADESMEN TO SECURE THE DESIRED RESULTS. SEAL AROUND ALL CONDUITS, WIRES, AND CABLES PENETRATING WALLS, CEILINGS, AND FLOOR IN ALL LOCATIONS WITH A FIRE STOP MATERIAL.</div><div>3. MAINTAIN ALL SURFACES TO BE PAINTED IN A CLEAN AND SMOOTH CONDITION. WHERE ELECTRICAL WORK IS EXPOSED TO VIEW, REMOVE ALL FOREIGN MATERIAL AND RESTORE ALL DAMAGED FINISHES. AT THE COMPLETION OF THE WORK, LEAVE LIGHTING FIXTURES AND LAMPS CLEAN.</div><div>4. ALL DEBRIS, RUBBISH, AND SCRAPS, ETC., ASSOCIATED WITH THE ELECTRICAL WORK SHALL BE REMOVED EACH NIGHT AND ALL AREAS ARE TO BE LEFT SWEEPED CLEAN EACH NIGHT.</div></div> <div>SUBMITTALS</div> <div><div>1. PROVIDE A SEPARATE SUBMITTAL FOR ALL COMMODITIES AND EQUIPMENT REQUIRED FOR THE PROJECT, PROVIDE SUFFICIENT PRODUCT DATA TO CONFIRM ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ARE MET.</div><div>2. PROVIDE ALL FIELD TESTING RESULTS.</div><div>3. PROVIDE OPERATION AND MAINTENANCE MANUALS FOR ALL ELECTRICAL EQUIPMENT.</div></div> <div>FIELD TESTING</div> <div><div>1. PERFORM INSULATION-RESISTANCE TESTS ON EACH CONDUCTOR WITH RESPECT TO GROUND AND ADJACENT CONDUCTORS; APPLIED VOLTAGE SHALL BE 500 VDC FOR 300-VOLT RATED CABLE AND 1000 VDC FOR 600-VOLT RATED CABLE.</div><div>2. IN ADDITION TO THE TESTING NOTED HEREIN, FOR ALL ELECTRICAL EQUIPMENT, PERFORM ALL TESTING FOR EACH PIECE OF EQUIPMENT AS RECOMMENDED BY NETA (INTERNATIONAL ELECTRICAL TEST ASSOCIATION).</div></div> <div>PROGRAMMING</div> <div><div>1. THE EXISTING MULBERRY EFFLUENT PUMP STATION PLC SHALL BE PROGRAMMED TO CONTROL THE NEW ACTUATOR, MOV-1, SHOWN ON DRAWING E-04. THE PLC SHALL BE PROGRAMMED TO OPEN MOV-1 WHEN EITHER THE EAST POND FILL VALVE OR WEST POND FILL VALVE ARE OPENED. MOV-1 SHALL CLOSE WHEN BOTH THE EAST AND WEST FILL POND VALVES ARE CLOSED. THE EXISTING MULBERRY EFFLUENT PUMP STATION PLC SHALL RECEIVE THE EAST/WEST POND FILL VALVE POSITION STATUS VIA THE EXISTING DATA COMMUNICATION LINK BETWEEN THE MULBERRY EFFLUENT PUMP STATION PLC AND THE EXISTING EAST AND WEST POND CONTROL PANELS. MOV-1 SHALL ALSO OPEN WHEN THE HYDRONEUMATIC TANK VCP REQUESTS THE TANK TO BE FILLED, THE VALVE SHALL BE OPENED PRIOR TO THE EXISTING MULBERRY EFFLUENT PUMPS STARTING.</div><div>2. THE EXISTING ISLAND RE-USE PLC PANEL SHALL COMMUNICATE VIA ETHERNET WITH THE ISLAND RE-USE PUMP VCP TO HAVE A SOFTWARE INTERLOCK SO THE EXISTING ISLAND RE-USE PUMPS DO NOT OPERATE WHEN THE NEW RE-USE PACKAGED PUMP STATION PUMPS ARE OPERATING AND VICE VERSA. THE EXISTING CONTROL SYSTEM (WUNDERWARE GALAXY) SHALL BE UPDATED TO INCLUDE A NEW SCREEN FOR THE PACKAGED PUMP STATION, THE SCREEN SHALL INCLUDE ALL STATUS (RUNNING, FAILED, FLOW, PRESSURE, ETC.) AND THE ABILITY TO START AND STOP THE PUMPS FROM THE PLANT CONTROL SYSTEM.</div></div> <div><div>3. THE NEW ACTUATORS IN LINE A AND LINE B AT THE SMOKETREE/95 INTERSECTION SHALL BE PROGRAMMED TO BE OPENED FROM THE EXISTING MULBERRY WUNDERWARE GALAXY CONTROL SYSTEM. THE EXISTING CONTROL PANEL AT SMOKETREE AND 95 COMMUNICATES TO THE EXISTING MULBERRY PLANT CONTROL SYSTEM VIA A LICENSED RADIO. THE NEW MICROLOGIX PLC LOCATED IN THE EXISTING CONTROL PANEL AT SMOKETREE/95 SHALL BE REPROGRAMMED TO MATCH THE EXISTING PROGRAM AND I/O CURRENTLY INSTALLED ON THE EXISTING MICROLOGIX PLC. THE EXISTING I/O IS THE FOLLOWING: DISCRETE INPUTS - HIGH PRESSURE, HIGH TEMPERATURE, POWER FAILURE, AIR CONDITIONER FAILURE VALVE POWER, VALVE FAILURE, DISCRETE OUTPUTS - VALVE OPEN, VALVE CLOSE, ANALOG INPUT - PRESSURE.</div><div>4. THE NEW ACTUATOR IN OAK DRIVE EAST OF THE MULBERRY PLANT SHALL BE PROGRAMMED TO OPEN WHEN THE GOLF COURSE DEMANDS WATER. THE FOLLOWING I/O SHALL BE PROGRAMMED FOR THE ACTUATOR: DISCRETE INPUTS - VALVE OPENED, VALVE CLOSED, VALVE IN REMOTE, DISCRETE OUTPUTS - VALVE OPEN, VALVE CLOSE.</div><div>5. PROVIDE ALL PROGRAMMING REQUIRED FOR THE NEW IRRIGATION VALVES AND THE WIRELESS COMMUNICATION FOR THE VALVES AT WALNUT/95. AS NECESSARY, ASSIST THE OWNER WITH PROGRAMMING FOR THE EXISTING MASTER IRRIGATION CONTROLLER AND THE EXISTING IRRINET ACE CONTROLLER.</div></div>												PLANT AREA	NEMA ENCLOSURE TYPE	EXPOSED CONDUIT TYPE	ENVIRONMENT W = WET D = DAMP C = CLEAN/DRY X = CORROSIVE H = HAZARDOUS	SUPPORT MATERIALS	ELECTRICAL ROOMS	NEMA 12	GRC	C	GALVANIZED STEEL	MULBERRY & ISLAND WWTP OUTDOOR AREAS	NEMA 4X	PCS	X	STAINLESS STEEL	OUTDOOR AREAS FOR IRRIGATION	NEMA 4	GRC	W	GALVANIZED STEEL
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LAKE HAVASU CITY
COMMUNITY INVESTMENT DEPARTMENT
WATER CONSERVATION
PROGRAM IMPLEMENTATION
PACKAGE NO. 2

DESIGNED BY: KJA
DRAWN BY: VVJ
CHECKED BY: MJP
DATE: AUGUST 2016
DWG SCALE:

ELECTRICAL
ELECTRICAL AND
PROGRAMMING
SPECIFICATIONS

Professional Engineer
K. JEFFREY ANGLE
53655
DATE SIGNED: 06-30-2018
ARIZONA, U.S.A.

EXPIRES 06-30-2018

Sheet Number:
E-003
Sheet 37 OF 43

LAKE HAVASU CITY

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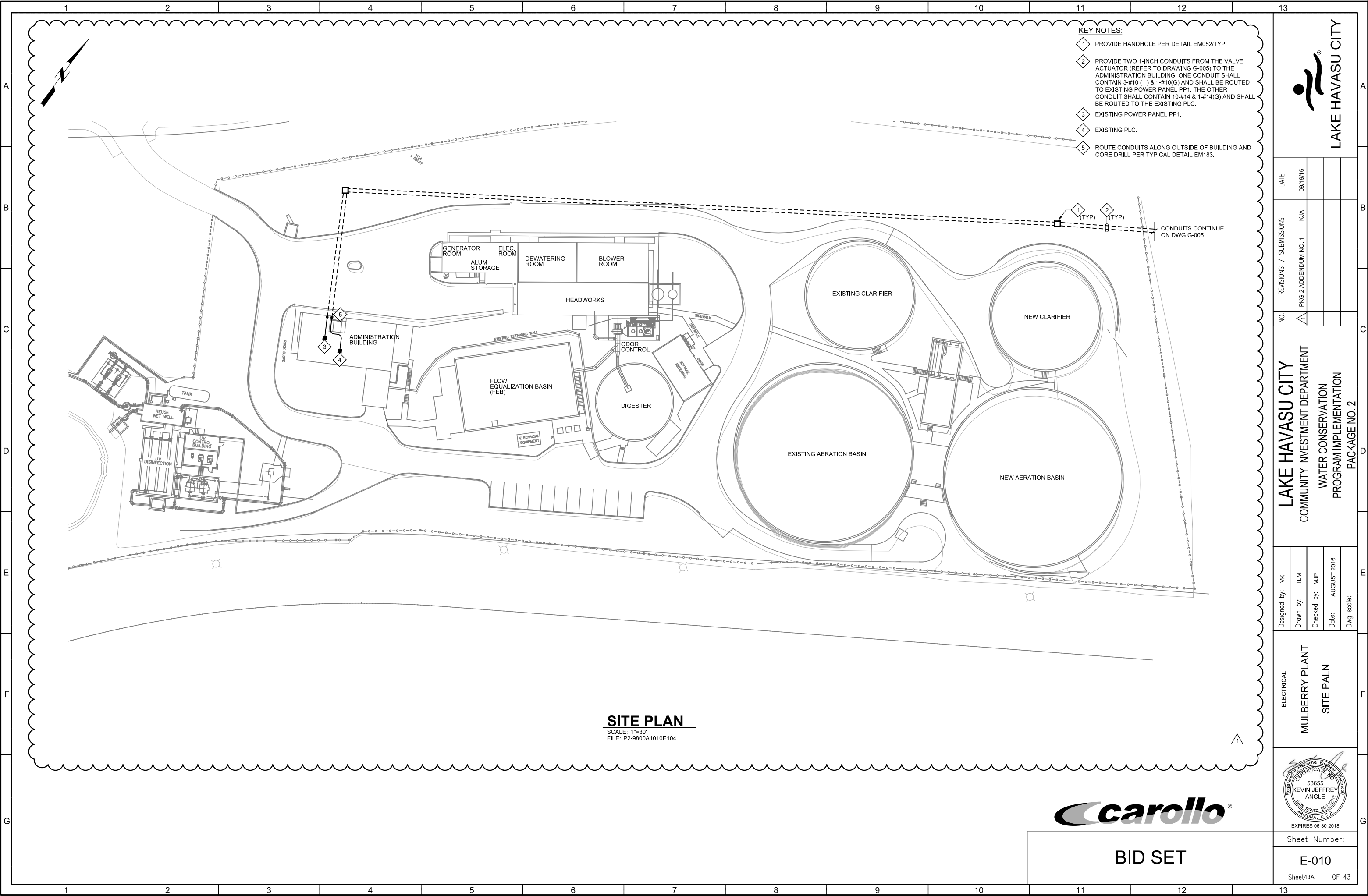
PROJECT NO. 9800A10

FILE NAME: P2-9800A10_E-003.dgn

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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std Pen_v0905.pen PlotScale: 2:1

LAST SAVED BY: imrabito



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COMMUNITY INVESTMENT DEPARTMENT		WATER CONSERVATION		PROGRAM IMPLEMENTATION		PACKAGE NO. 2		MULBERRY PLANT		SITE PALN	
DESIGNED BY: VK		DRAWN BY: TLM		CHECKED BY: MJP		DATE: AUGUST 2016		DWG SCALE:		ELECTRICAL	
NO.		REVISIONS / SUBMISSIONS		DATE		PKG 2 ADDENDUM NO. 1		KJA		53655	
1				09/19/16						KEVIN JEFFREY	
										ANGLE	
										DATE SIGNED: 08/21/16	
										ARIZONA, U.S.A.	
										EXPIRES 06-30-2018	
										Sheet Number:	
										E-010	
										Sheet43A OF 43	